What is claimed is:

1. An aqueous coating composition comprising polycarbonate polyols **A2** and a polyurethane chain-extended with compounds **D** which are at least difunctional with respect to isocyanates, said polyurethane comprising building blocks of hydroxy acids **C** and urethane groups derived from polyfunctional isocyanates **B** and said polyurethane containing blocks derived from polyene polyols **A1** and from polycarbonate polyols **A2**.

2. The aqueous coating composition as claimed in claim 1, wherein the mass ratio of blocks derived from polyene polyols **A1** to blocks derived from polycarbonate polyols **A2** is from 1:8 to 4:5.

3. The aqueous coating composition as claimed in claim 1, whose acid number is at least 15 mg/g.

4. The aqueous coating composition as claimed in claim 1, wherein the isocyanates **B** are aliphatic linear, branched or cyclic isocyanates.

5. The aqueous coating composition as claimed in claim 1, wherein the ratio of the amount of substance of the isocyanate-reactive groups of the chain extenders **D** to the amount of substance of the isocyanate groups in the isocyanate-functional prepolymers is from 0.5:1 to 1:1.

6. A process for preparing an aqueous coating composition as claimed in claim 1, which comprises in the first step a) preparing an isocyanate-

functional prepolymer from the polyene polyols **A1**, the hydroxy acids **C**, and the polyfunctional isocyanates **B** and in the second step b) mixing said prepolymer with the polycarbonate polyol **A2** and, after an at least partial reaction, in the third step c) dispersing this mixture with water containing a chain extender **D**.

7. The process as claimed in claim 6, wherein, in the reaction in step c), from 1 to 20 % of the polycarbonate polyol **A2** reacts with the isocyanate-functional prepolymer to form an adduct.

8. The process as claimed in claim 6, wherein the isocyanate-functional prepolymer prepared in step a) has a Staudinger index of at least 18 cm^3/g.

9. A method of use of an aqueous coating composition as claimed in claim 1 to produce soft coatings, comprising coating substrates selected from metal, plastic, wood, stone, and concrete with the coating composition as claimed in claim 1 and an isocyanato-containing crosslinking agent.

10. A substrate coated with an aqueous coating composition as claimed in claim 1.